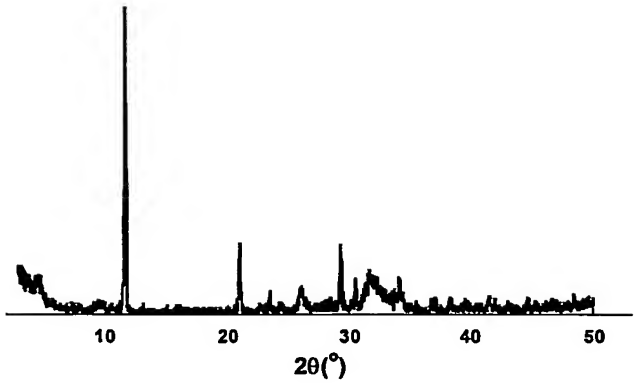

Figure 1: XRD pattern of composite following co-precipitation (Cu-Kα radiation).

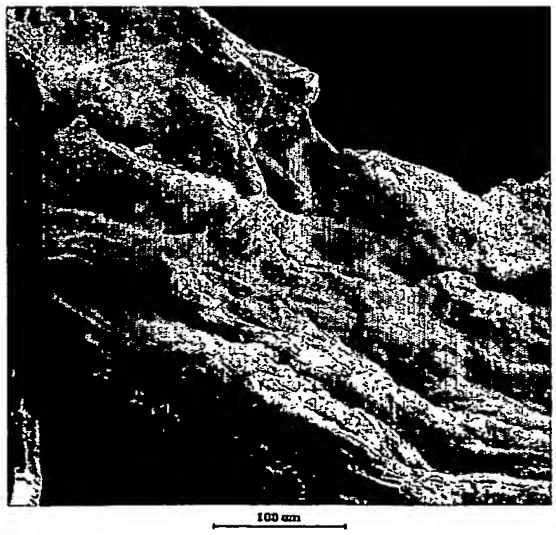

Figure 2: SEM micrograph of triple co-precipitate.

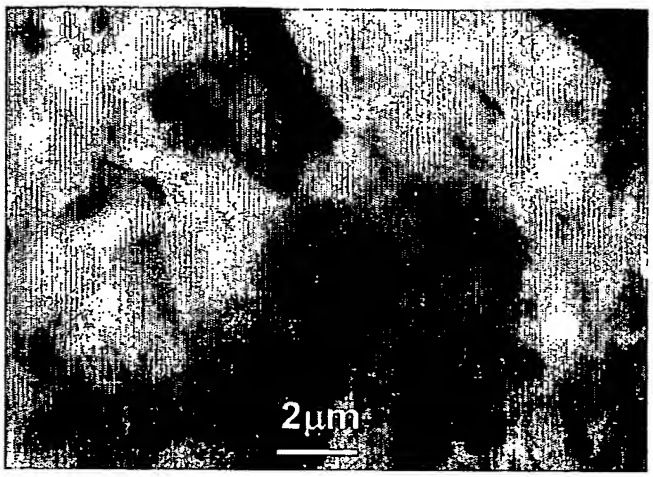

Figure 3: TEM micrograph of triple co-precipitate

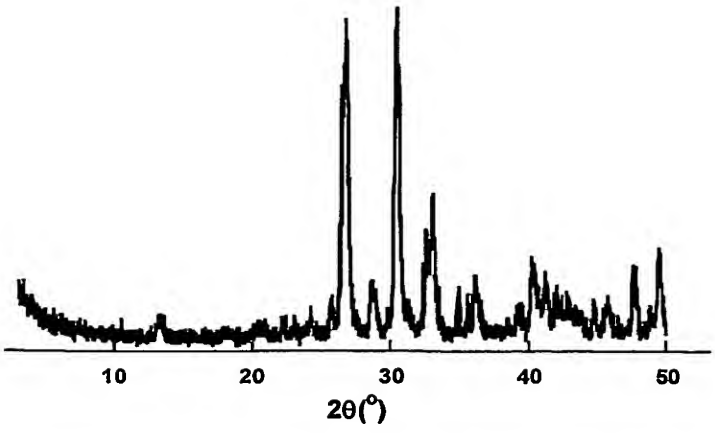

Figure 4: XRD pattern of composite following dehydrothermal treatment at 105°C and 50mTorr for 48 hours, indicating that the brushite phase has converted to its dehydrated form monetite.

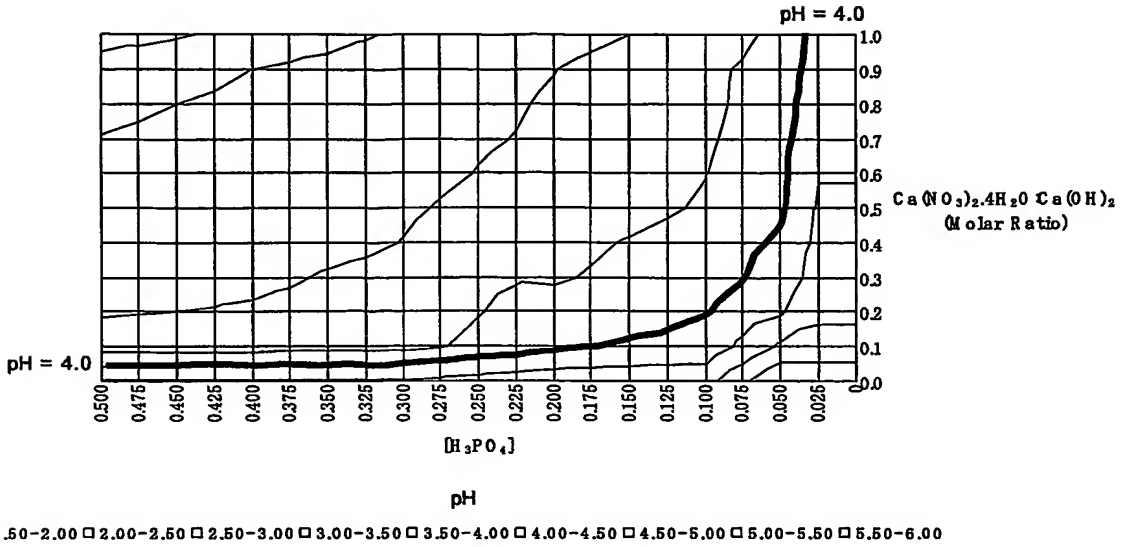

Figure 5: set of combinations of ionic concentration and calcium nitrate: calcium hydroxide ratio for maintaining pH = 4.0.

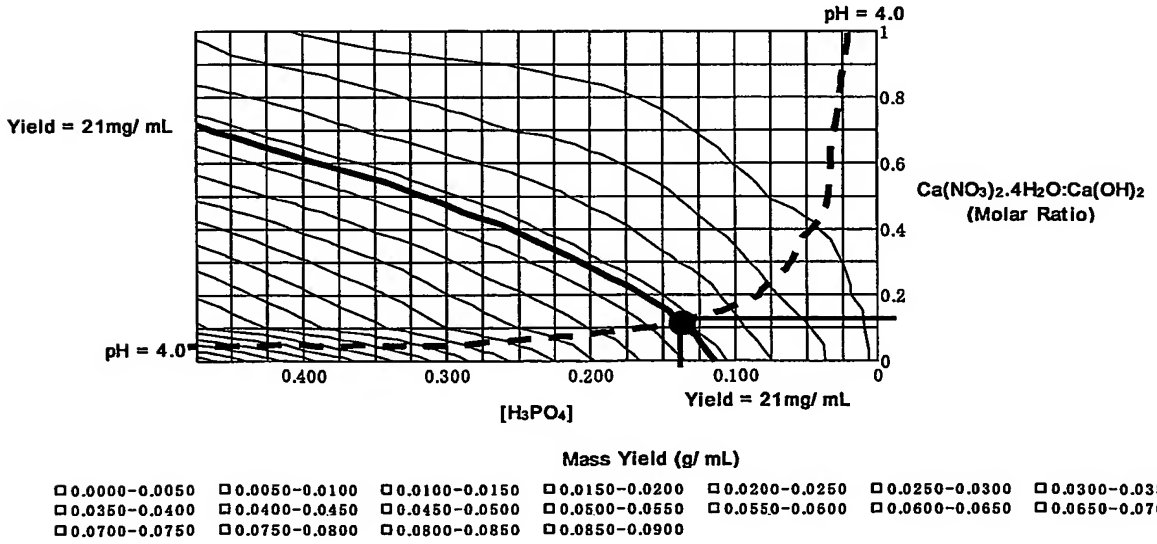

Figure 6: Identification of conditions for pH 4.0 synthesis of a triple coprecipitate slurry containing a 1:1 mass ratio of calcium phosphate to collagen plus GAG.

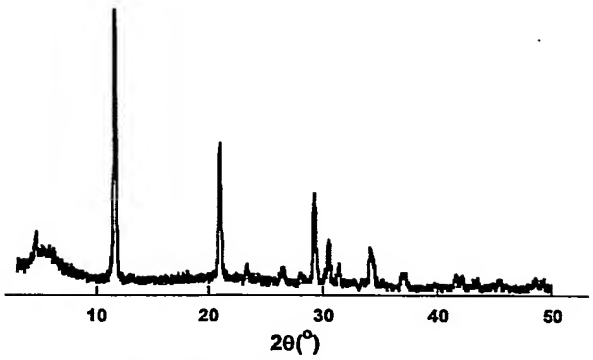

Figure 7: x-ray diffraction pattern of collagen/GAG/brushite triple coprecipitate following removal of unbound water (Cu-K_α radiation).

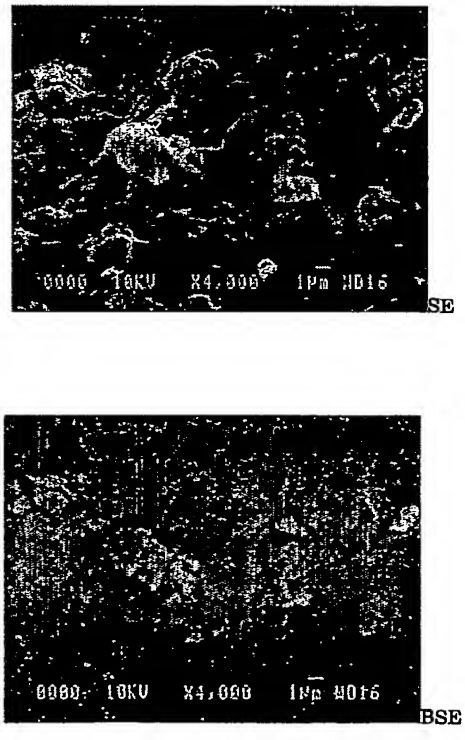

Figure 8: Secondary (SE) and backscattered electron (BSE) images of surface of triple coprecipitate with CaP: collagen + GAG = 1:1.

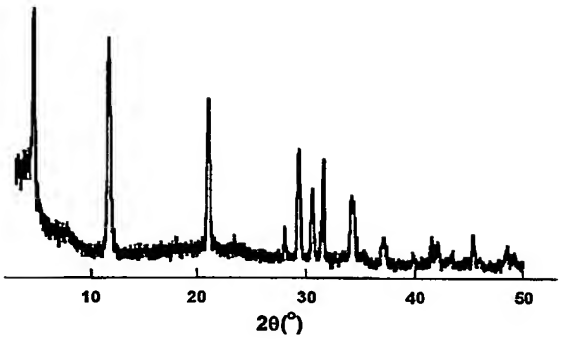

Figure 9: x-ray diffraction pattern of collagen/GAG/brushite triple coprecipitate following EDAC crosslinking (Cu-K_α radiation).

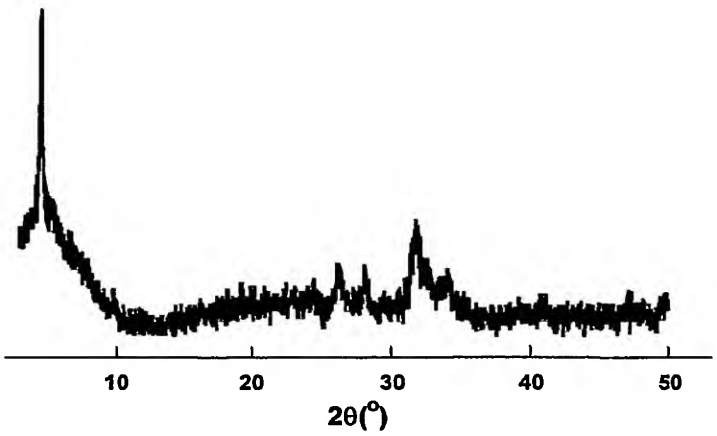

Figure 10: x-ray diffraction pattern of EDAC-crosslinked collagen/GAG/CaP triple coprecipitate following conversion at 37°C to octacalcium phosphate (OCP) over 72 hours at pH 6.67, to form a collagen/GAG/OCP biocomposite (Cu-K_α radiation).

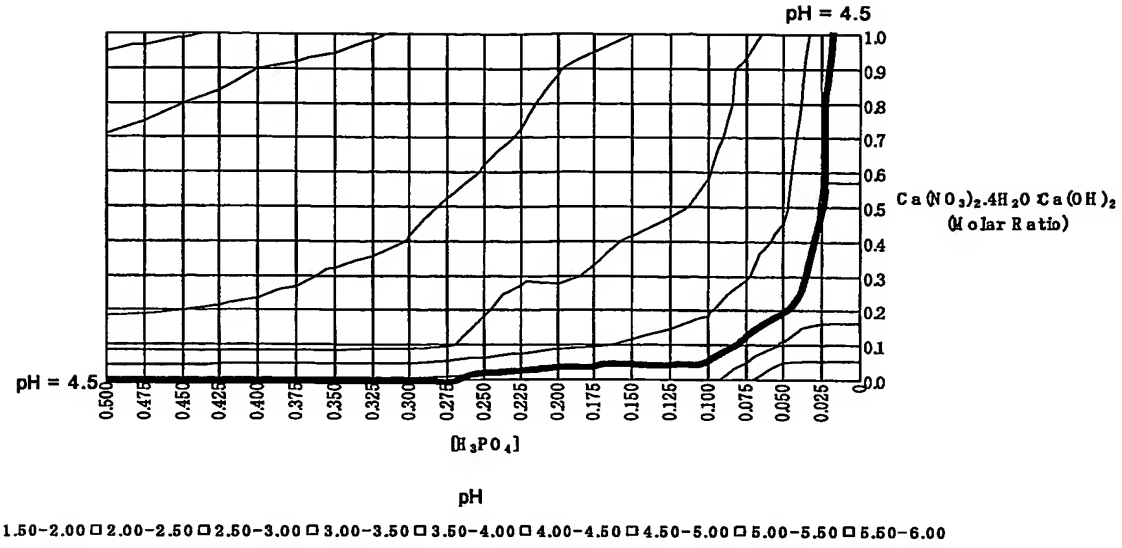

Figure 11: set of combinations of ionic concentration and calcium nitrate: calcium hydroxide ratio for maintaining pH = 4.5.

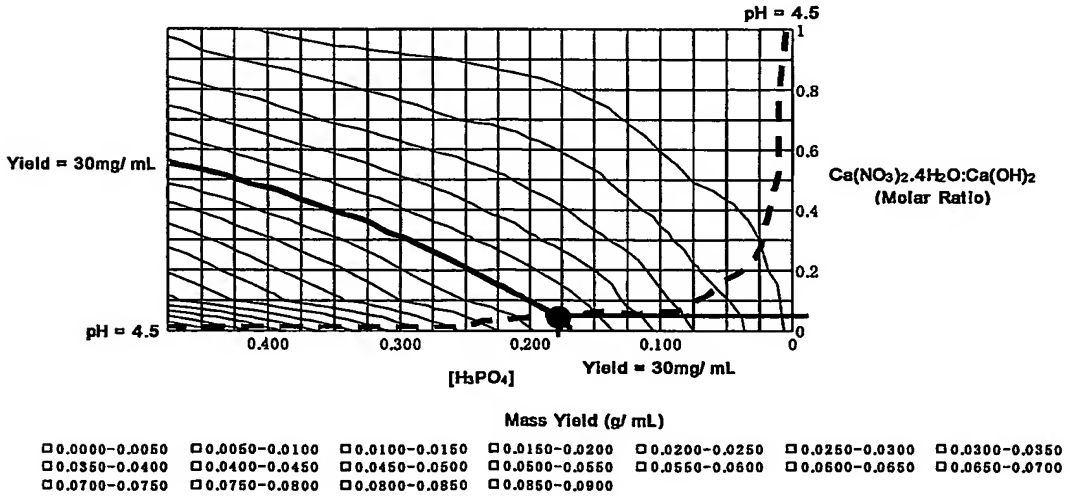

Figure 12: Identification of conditions for pH 4.5 synthesis of a triple coprecipitate slurry containing a 3:1 mass ratio of calcium phosphate to collagen plus GAG.

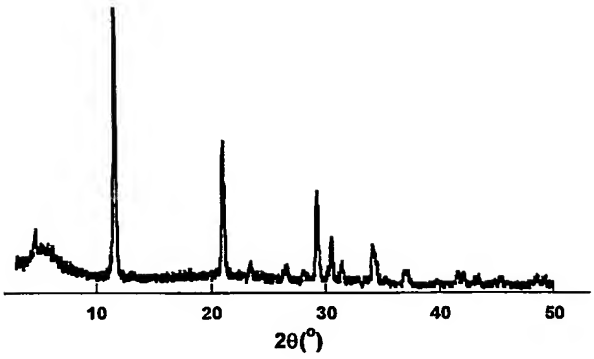

Figure 13: x-ray diffraction pattern of collagen/GAG/brushite triple coprecipitate following removal of unbound water (Cu-K_α radiation).

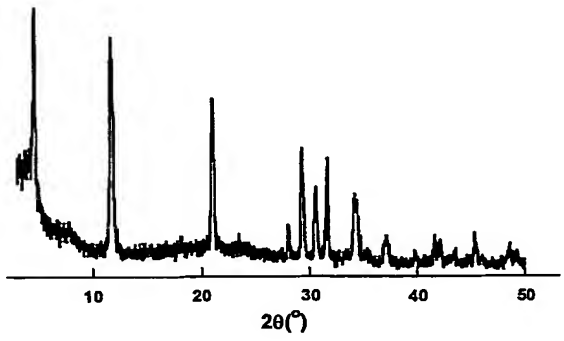

Figure 14: x-ray diffraction pattern of collagen/GAG/brushite triple coprecipitate following EDAC crosslinking (Cu-K_α radiation).

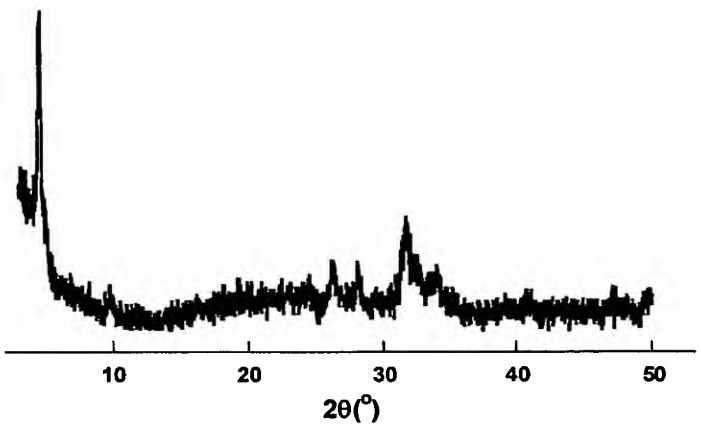

Figure 15: x-ray diffraction pattern of EDAC-crosslinked collagen/GAG/CaP triple coprecipitate following conversion at 37°C to apatite over 72 hours at pH 8.50, to form a collagen/GAG/apatite biocomposite (Cu-K_α radiation).

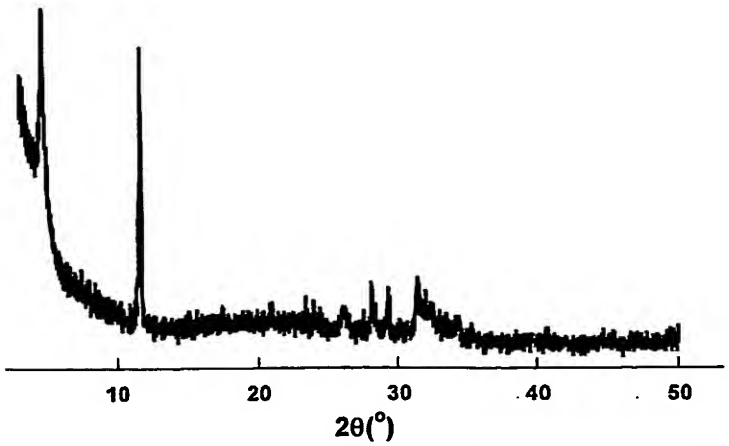

Figure 16: X-ray diffraction pattern of EDAC-crosslinked collagen/GAG/Ap triple coprecipitates after secondary crosslinking via gamma irradiation.

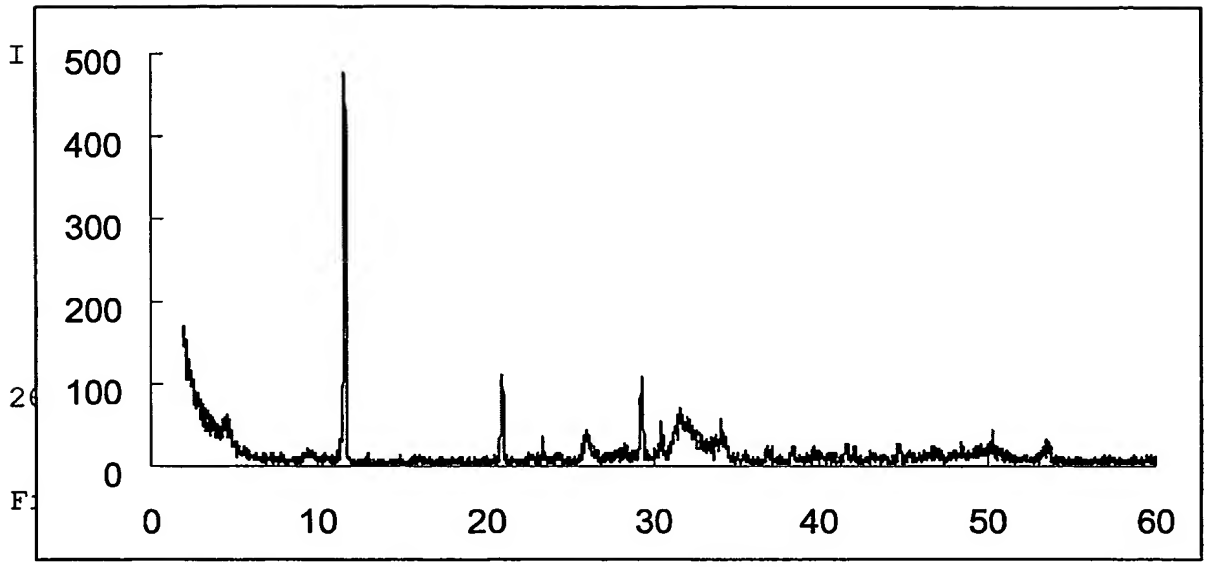
I
500
400
300
200
100
0
0
10
20
30
40
50
60
2 theta (degrees) (I = Relative Intensity)

Figure 17

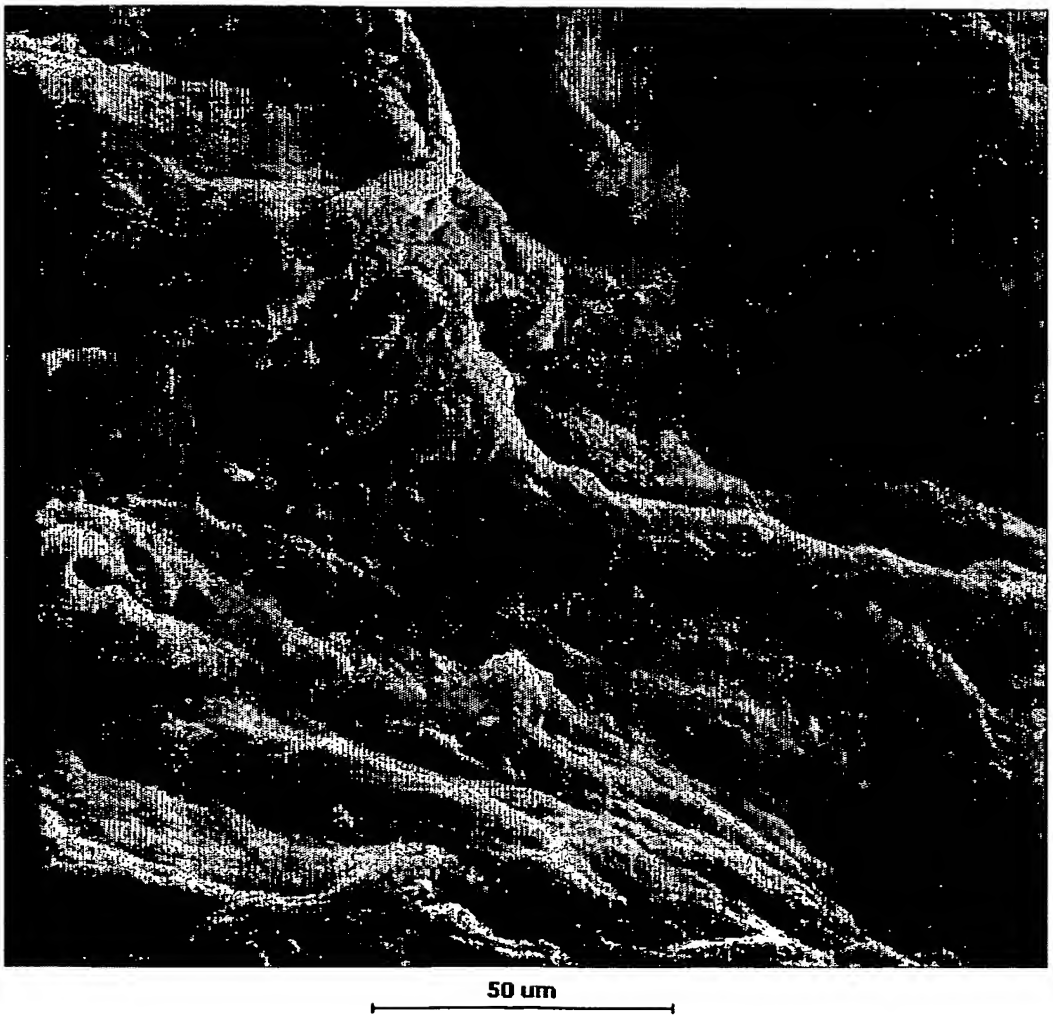

Figure 18

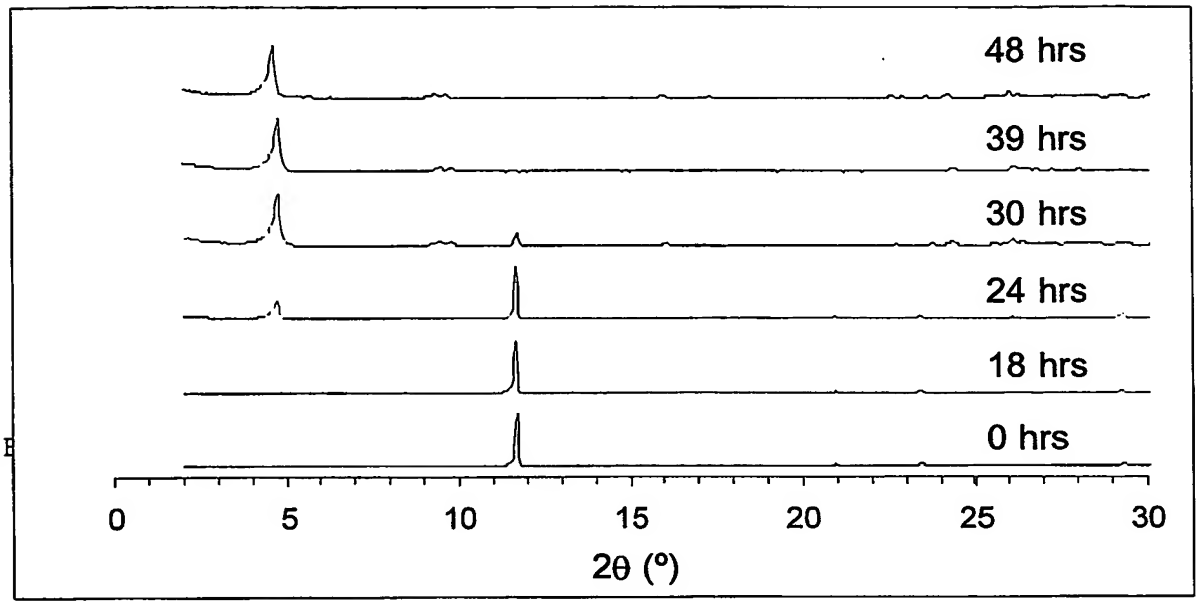

Figure 19

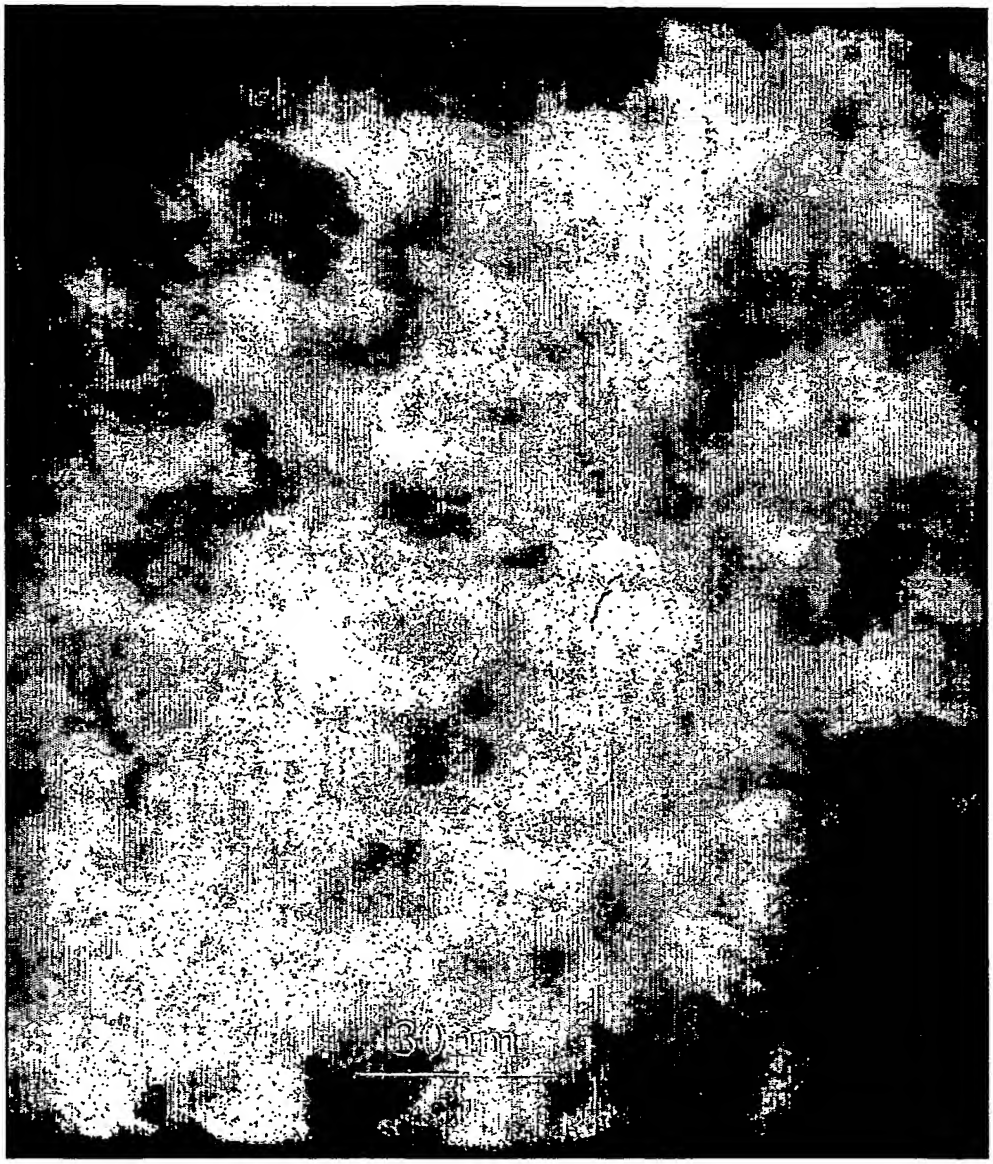

Figure 20